

## Current and Potential Chemical Methods for Controlling Predation on Waterfowl

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Current Environmental Protection Agency (EPA) registered products and products being relabeled or re-registered for waterfowl protection purposes include: (1) gas cartridges -- for use in dens of mammalian predators; (2) M-44 cyanide capsule (sodium cyanide) -- for mammalian predators such as coyote, fox, and feral dog; (3) DRC-1339 (CPTH; 3-chloro-p-toluidine hydrochloride) -- for use in egg and meat baits for controlling the common raven and American crow; and (4) 8 mg strychnine egg -- for control of Franklin's ground squirrel (this registration was temporarily cancelled by EPA on October 5, 1988, but may be reinstated in the future with major labeling changes). Other chemical methods that have been investigated under EPA Experimental Use Permits include the 4 mg 1080 single dose bait (SDB) and the 2.5 ppm diphacinone meat bait. SDBs were tested by personnel of the Alaska Maritime National Wildlife Refuge on Kiska Island, Aleutian Islands, Alaska, for control of predation on Aleutian Canada geese by introduced arctic foxes. Arctic foxes were eliminated with minimal adverse effects to other wildlife. The 2.5 ppm diphacinone meat bait was developed to control mongoose predation on four endangered upland bird species (Hawaiian goose, tree-nesting crow, burrow-nesting dark-rumped petrel, Newell's shearwater) and four wetland endangered bird species (Hawaiian duck, coot, stilt, gallinule) in Hawaii. Diphacinone was highly effective against mongooses with minimal adverse environmental effects. The experiments with both the 4 mg 1080 SDB and 2.5 ppm diphacinone meat bait have been completed, but applications for FIFRA Section 3 registration have not yet been submitted for either of these highly successful control methods. One chemical delivery method for predators that has received only limited research is the coyote lure operative device (CLOD) that was developed at the University of California, Davis. This device can deliver a variety of chemical toxicants and chemosterilants.

Limited testing indicates that the CLOD may be as selective as the M-44 for target species. Several chemical methods known to be effective for managing predation of wetland birds are not available because high registration costs have hindered their implementation into actual field use.